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Coal - Underground Fatalities
Second Half - 1990

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U.S. Department of Labor
Mine Safety and Health Administration

ABSTRACTS WITH ILLUSTRATIONS

ANALYSIS AND SUGGESTED USES

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U.S. Department of Labor
Lynn Martin
Secretary

Mine Safety and Health Administration
William J. Tattersall
Assistant Secretary

INTRODUCTION

The 1990 Fatal Illustration Program is divided into four categories or subject areas. These categories are underground coal mining; surface coal mining; underground metal/nonmetal mining; and surface metal/nonmetal mining. Fatalities in each category are grouped by accident type.

The materials in this unit include illustrated abstracts (summaries) of all chargeable underground coal mining fatalities for the second six months of 1990 accompanied by 35mm slides.

A statistical analysis is included for fatalities that occurred during July through December 1990. The analysis examines the following areas: the victim's experience, the accident classification, the victim's occupation, and the size of the mine where the fatality occurred. Tables are included in this package. They are divided into first half and second half data for 1990. The tables tabulate age and experience of the victim, accident classification and occupation of the victim, and mine size and location of the accident. A slide index is also included which helps locate fatalities for a particular occupation, accident classification, location, and mine size.

DISCLAIMER

The abstracts included in this program are intended to be used for instructional purposes. Efforts are made to base this data on MSHA's final accident investigation reports. However, preliminary investigation information may have been used for these abstracts to meet the deadline for this publication.

FATALITIES - UNDERGROUND COAL MINES
SECOND HALF 1990

STATISTICAL ANALYSIS

Twenty-six fatal accidents occurred at underground coal mines during July through December 1990.

Victim's Age

- Fifty-seven percent of the fatalities for the second half occurred to workers 35 years old or less. Thirty-five percent were 31-35 years old.

Victim's Experience

- Sixty-five percent of the fatalities for the second half occurred to workers with over 10 years of mining experience.

Accident Classification

- Forty-two percent of the fatalities were roof falls. Fifteen percent were machinery. Electrical and explosives each resulted in 12 percent of the fatalities.

Victim's Occupation

- Continuous miner operators were involved in 12 percent of the fatalities for the second half. Coal drill operators and hoist operators each accounted for 8 percent of the fatalities.

Mine Size

- Seventy percent of the fatalities occurred at large mines (20 or more employees). Thirty percent occurred at small operations (less than 20 employees).

Contractor Fatalities

- Three of the fatalities occurred to contractors.

FATALITIES BY VICTIM'S AGE
UNDERGROUND COAL

First Half 1990

Age (Years)	Number of Fatalities
20-25	2
26-30	3
31-35	3
36-40	6
41-45	4
46-50	2
51-55	2

Second Half 1990

Age (Years)	Number of Fatalities
20-25	1
26-30	5
31-35	9
36-40	3
41-45	5
46-50	1
51-55	1
56-60	1

FATALITIES BY VICTIM'S EXPERIENCE
UNDERGROUND COAL

First Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
1 - 3 wks.		1	1
1 - 6 mos.	1	6	7
1 - 2 yrs.		4	4
3 - 4 yrs.	1		2
5 - 7 yrs.		3	4
8 - 10 yrs	2	2	1
11 - 12 yrs.	5	3	2
13 - 14 yrs.	2		
15 - 20 yrs.	9	3	1
21 - 25 yrs.	1		
26 - 30 yrs.	1		

Second Half 1990

Experience (Years)	Mining Experience	Job Experience	Experience This Mine
1 - 3 wks.		2	2
1 - 6 mos.		4	2
7 -11 mos.	1	1	1
1 - 2 yrs.	1	5	5
3 - 4 yrs.		3	1
5 - 6 yrs.	2	3	
7 - 8 yrs.	2	2	1
9 -10 yrs	3	2	2
11 -12 yrs.	7	2	5
13 -14 yrs.	2	1	2
15 -16 yrs.	3	1	1
19 - 20 yrs.	2		
21 - 22 yrs.	2		1
25 - 26 yrs.	1		
Unknown			3

FATALITIES BY ACCIDENT CLASSIFICATION
UNDERGROUND COAL

Classification	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Electrical	3	3	6
Explosives		3	3
Fall of Highwall		1	1
Machinery	5	4	9
Powered Haulage	4	3	7
Roof Fall	10	11	21
Other		1	1

FATALITIES BY MINE SIZE
UNDERGROUND COAL

Mine Size	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Small *	7	8	15
Large **	15	18	33

* Less than 20 employees
** 20 or more employees

FATALITIES BY VICTIM'S OCCUPATION
UNDERGROUND COAL

Occupation	Fatalities (1st Half)	Fatalities (2nd Half)	Fatalities (Total)
Coal Drill Operator		2	2
Construction Worker		1	1
Continuous Miner Helper	2	1	3
Continuous Miner Operator	2	3	5
Co-owner		1	1
Electrician	2	2	4
Electrical Repairman		1	1
General Laborer	1	1	2
General Inside Laborer		1	1
General Laborer/Utility Person	1		1
Hoist Operator		2	2
Loader Operator		1	1
Longwall Helper		1	1
Mechanic	2		2
Mechanic/Electrician	1		1
Mine Manager		1	1
Miner		1	1
Miner Operator		1	1
Mobile Bridge Carrier Operator		1	1
Roof Bolter		1	1
Roof Bolter Helper	1		1
Roof Bolting Machine Operator	2	1	3
Section Foreman		1	1
Shot Firer		1	1
Shuttle Car Operator	2		2
Supervisors	5		5
Truck Driver		1	1
Utility Person	1		1

SLIDE INDEX

FATALITIES BY OCCUPATION
UNDERGROUND COAL - SECOND HALF 1990

You will find fatalities that happened to:
COAL DRILL OPERATORS on slide 41
CONSTRUCTION WORKERS on slide 38
CONTINUOUS MINER HELPERS on slide 33
CONTINUOUS MINER OPERATORS on slides 25, 28, 31, and 37
CO-OWNERS on slide 23
ELECTRICIANS on slides 35, 39, and 45
GENERAL LABORERS on slide 40
GENERAL INSIDE LABORERS on slide 32
HOIST OPERATORS on slides 36 and 46
LOADER OPERATORS on slide 30
LONGWALL HELPERS on slide 24
MINE MANAGERS on slide 34
MINERS on slide 43
MOBILE BRIDGE CARRIER OPERATORS on slide 44
ROOF BOLTERS on slide 29
ROOF BOLTING MACHINE OPERATORS on slide 26
SECTION FOREMEN on slide 27
SHOT FIRERS on slide 41
TRUCK DRIVERS on slide 42

SLIDE INDEX

FATALITIES BY ACCIDENT CLASSIFICATION UNDERGROUND COAL - SECOND HALF 1990

You will find:
ELECTRICAL fatalities on slides 38, 39, and 40
EXPLOSIVES fatalities on slide 41
FALL OF HIGHWALL fatalities on slide 45
MACHINERY fatalities on slides 34, 35, 36, and 37
POWERED HAULAGE fatalities on slides 42, 43, and 44
ROOF FALL fatalities on slides 23, 24, 25, 26, 27, 28, 29,
30, 31, 32, and 33
OTHER fatalities on slide 46

FATALITIES BY MINE SIZE UNDERGROUND COAL - SECOND HALF 1990

You will find fatalities that happened at:
SMALL MINES * on slides on slides 23, 30, 36, 41, 42, and 45
LARGE MINES ** on slides 24, 25, 26, 27, 28, 29, 31, 32, 33, 34,
35, 37, 38, 39, 40, 43, 44, and 46

* Less than 20 employees
** 20 or more employees

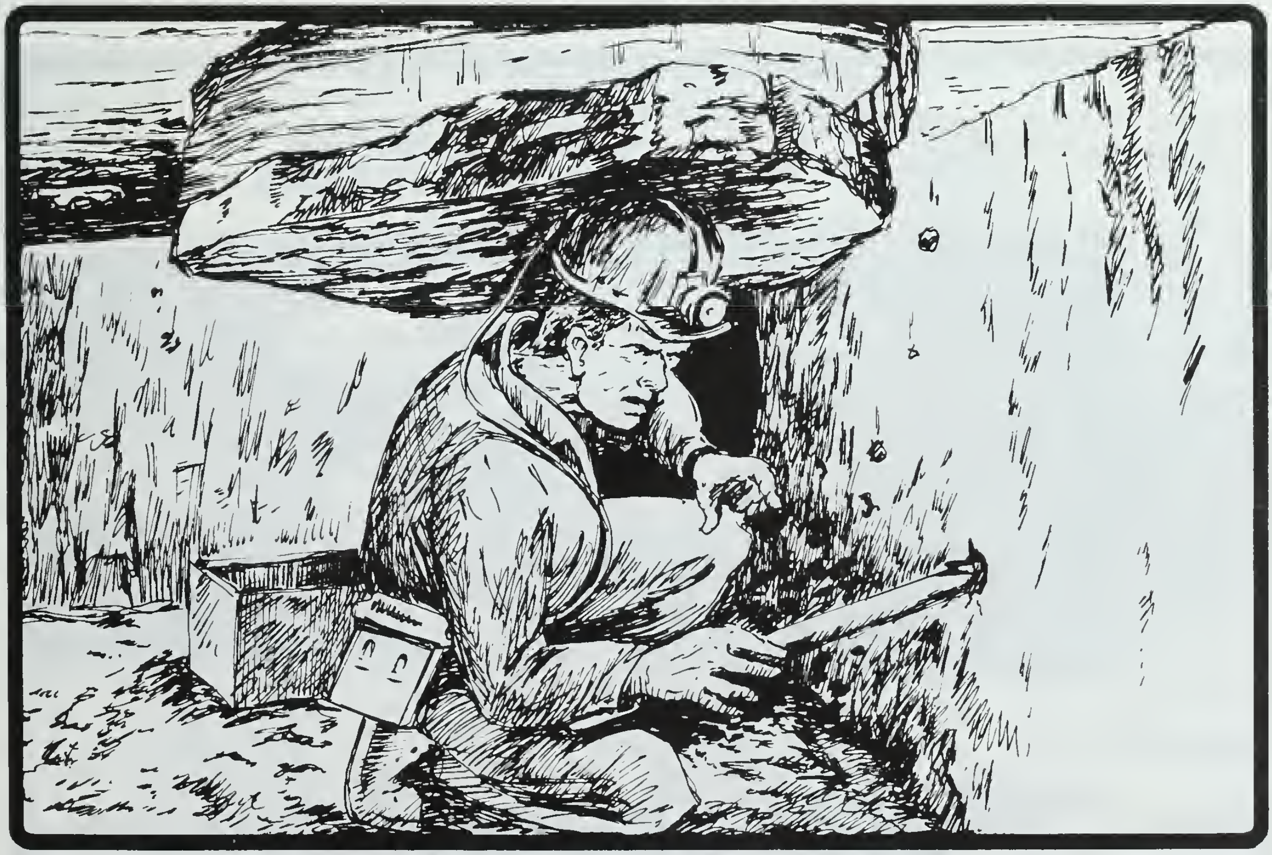
ABSTRACT OF INVESTIGATION

Date: July 6, 1990
Slide Number: 23 (Fatal Case Number: 34)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 37
Total Mining Experience: 19 years
Total Experience at this Mine: 11 years
Total Experience at this Job: 10 years
Number Employed at Mine: 6
Number Working at Time of Accident: 5
Time of Accident: 10:30 a.m.
Mining Height: 48 inches

A co-owner was loading and stemming boreholes six feet beyond roof support when a rock measuring 8 feet long, 5 feet wide, and 6 1/2 inches thick fell from the mine roof causing fatal injuries.

Means of Prevention
Never go inby unsupported roof.



ABSTRACT OF INVESTIGATION

Date: July 23, 1990
Slide Number: 24 (Fatal Case Number: 35)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Illinois

Age of Victim: 37
Total Mining Experience: 14 years
Total Experience at this Mine: 1 year
Total Experience at this Job: 1 year
Number Employed at Mine: 340
Number Working at Time of Accident: 79
Time of Accident: 10:40 a.m.
Mining Height: 88 inches

A longwall recovery crew was constructing a roof support crib. They were using 36-inch wooden crib tie material. The inby ends of two partially broken 3- by 7-inch wooden planks, approximately eleven feet long, were bolted to the mine roof. They needed to be removed so they would not interfere with the crib construction. The planks were going to be removed by tying a chain around them and pulling the chain with the scoop tractor. The supervisor was attaching the chain to the scoop bucket and the longwall helper stepped under the unsupported roof and attempted to tie the other end of the chain around the inby end of the wooden planks. A triangular shaped rock, approximately 48 inches long on each side and 11 inches thick, fell from the roof causing fatal injuries to the longwall helper.

Means of Prevention
Never go inby unsupported roof. Always be familiar with and follow the approved roof control plan.

ABSTRACT OF INVESTIGATION

Date: August 4, 1990
Slide Number: 25 (Fatal Case Number: 41)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Ohio

Age of Victim: 47
Total Mining Experience: 14 years
Total Experience at this Mine: 14 years
Total Experience at this Job: 5 years
Number Employed at Mine: 253
Number Working at Time of Accident: 75
Time of Accident: 6:30 p.m.
Mining Height: 52 inches

A continuous miner operator was operating a remote controlled continuous mining machine. He was positioned under supported roof about 4 feet outby the last row of roof bolts. As he was mining coal the roof fell in the mined portion of the room and continued outby the last row of bolts into the intersection where he was located. The roof fall pinned him against the mine floor, causing fatal injuries.

Means of Prevention

1. Always comply with the approved roof control plan.
2. Always conduct preshift and on shift examinations.
3. Adequately support the roof where subnormal roof conditions exist.

ABSTRACT OF INVESTIGATION

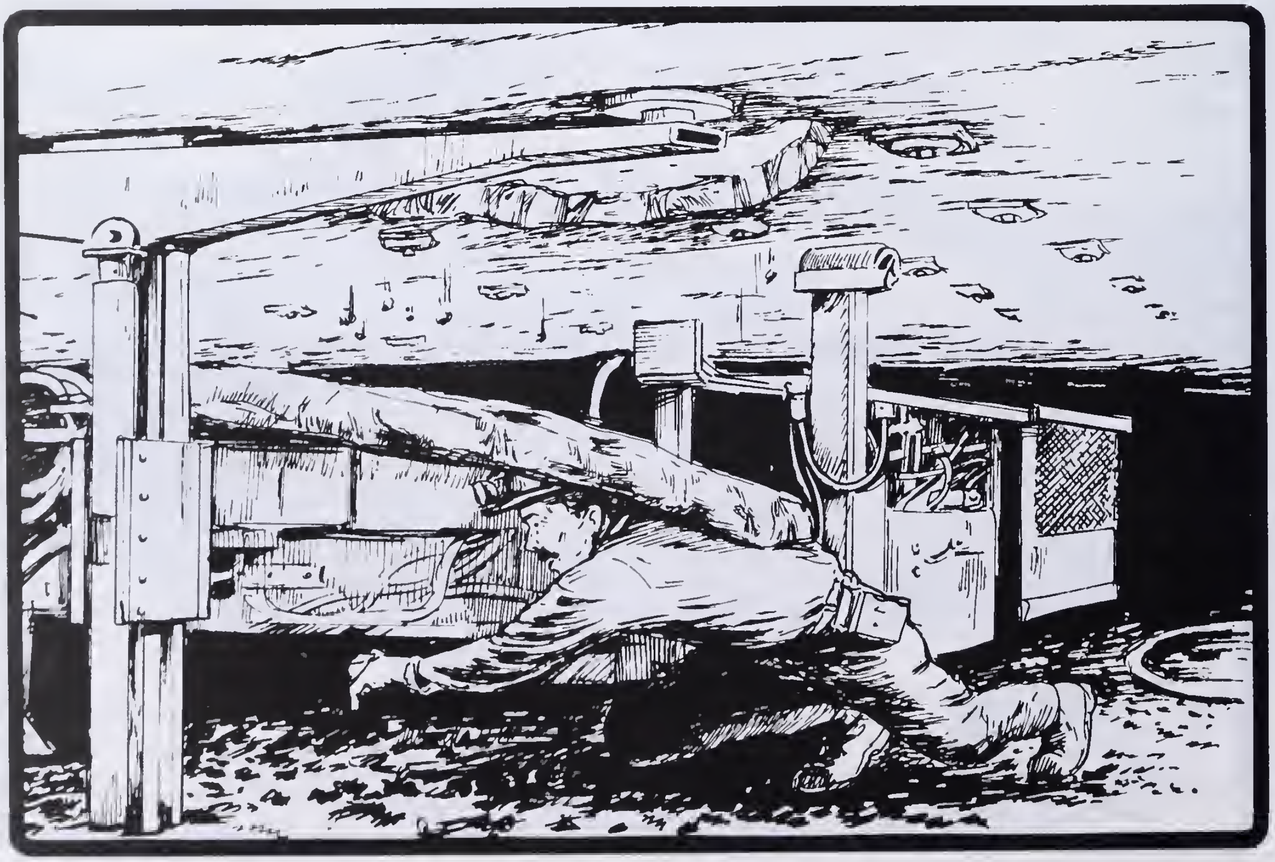
Date: August 27, 1990
Slide Number: 26 (Fatal Case Number: 46)
Accident Classification: Roof Fall
Type Of Mine: Coal - Underground
Location: West Virginia

Age of Victim: 44
Total Mining Experience: 15 years
Total Experience at this Mine: 7 years
Total Experience at this Job: 7 years
Number Employed at Mine: 20
Number Working at Time of Accident: 8
Time of Accident: 10:45 a.m.
Mining Height: 60 inches

A roof bolting machine operator was drilling a hole in the roof preparing to install a roof bolt inby the last row of permanent roof supports. He was using a roof bolting machine equipped with a T-bar type ATRS system. While he was changing a drill steel, an undetected piece of cap rock fell between the outby edge of the ATRS and the canopy over the drill controls, just inby the last row of bolts. The cap rock struck the victim causing fatal injuries.

Means of Prevention

1. Where the mining height permits and the visual examination does not disclose a hazardous condition, sound and vibration roof tests, or other equivalent tests, shall be made where supports are to be installed.
2. The roof bolting machine was not equipped with a canopy installed in such a manner that the operator was protected from falls of roof when at the drill controls.



ABSTRACT OF INVESTIGATION

Date: September 6, 1990
Slide Number: 27 (Fatal Case Number: 47)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 33
Total Mining Experience: 14 years, 10 months
Total Experience at this Mine: 9 years, 2 months
Total Experience at this Job: 3 years
Number Employed at Mine: 100
Number Working at Time of Accident: 30
Time of Accident: 5:30 p.m.
Mining Height: 60 inches

A section foreman was observing the roof inby the miner operator. Approximately 5 shuttle cars had been loaded when the roof fell. The roof fell into the intersection and covered the miner and the shuttle car to the operator's deck. The roof bolter operator was trapped against the shuttle car and the section foreman was fatally injured.

Means of Prevention

1. Always comply with the roof control plan and install additional supports when in doubt.
2. Stay behind the continuous miner operator when coal is being mined.
3. Use cribs when a pushout is threatening.
4. Keep unnecessary persons out of the danger zone of a pushout.
5. Use the remote control as a safety tool.

ABSTRACT OF INVESTIGATION

Date: September 20, 1990
Slide Number: 28 (Fatal Case Number: 51)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: West Virginia

Age of Victim: 43
Total Mining Experience: 12 years
Total Experience at this Mine: 12 years
Total Experience at this Job: 12 years
Number Employed at Mine: 27
Number Working at Time of Accident: 9
Time of Accident: 8:40 a.m.
Mining Height: 40 inches

A miner operator was running a remote controlled continuous mining machine from the entry inby the crosscut being turned left. The bottom was cut for a distance of approximately 40 feet to a point approximately 10 feet outby the crosscut that had been started to the right. The continuous mining machine was then moved to start a crosscut left. The miner operator had advanced about 10 feet and was under or slightly inby the last row of roof bolts when a rock, approximately 8 feet wide, 20 feet long, and 9 inches thick, fell in the unsupported cut. The rock fell on the continuous miner and pinned the miner operator against the mine floor causing fatal injuries.

Means of Prevention
Never proceed inby permanent roof supports,

ABSTRACT OF INVESTIGATION

Date: September 25, 1990

Slide Number: 29 (Fatal Case Number: 53)

Accident Classification: Roof Fall

Type of Mine: Coal - Underground

Location: Pennsylvania

Age of Victim: 57
Total Mining Experience: 11 years, 9 months
Total Experience at this Mine: 11 years, 9 months
Total Experience at this Job: 11 years, 9 months
Number Employed at Mine: 20
Number Working at Time of Accident: 10
Time of Accident: 9:50 a.m.
Mining Height: 6 1/2 feet

A roof bolter was preparing to set breaker posts when a roof fall occurred resulting in fatal injuries. The gob line roof fall was about 40 feet long, 20 feet wide, and 4 to 5 feet high.

Means of Prevention
Always comply with the approved roof control plan.

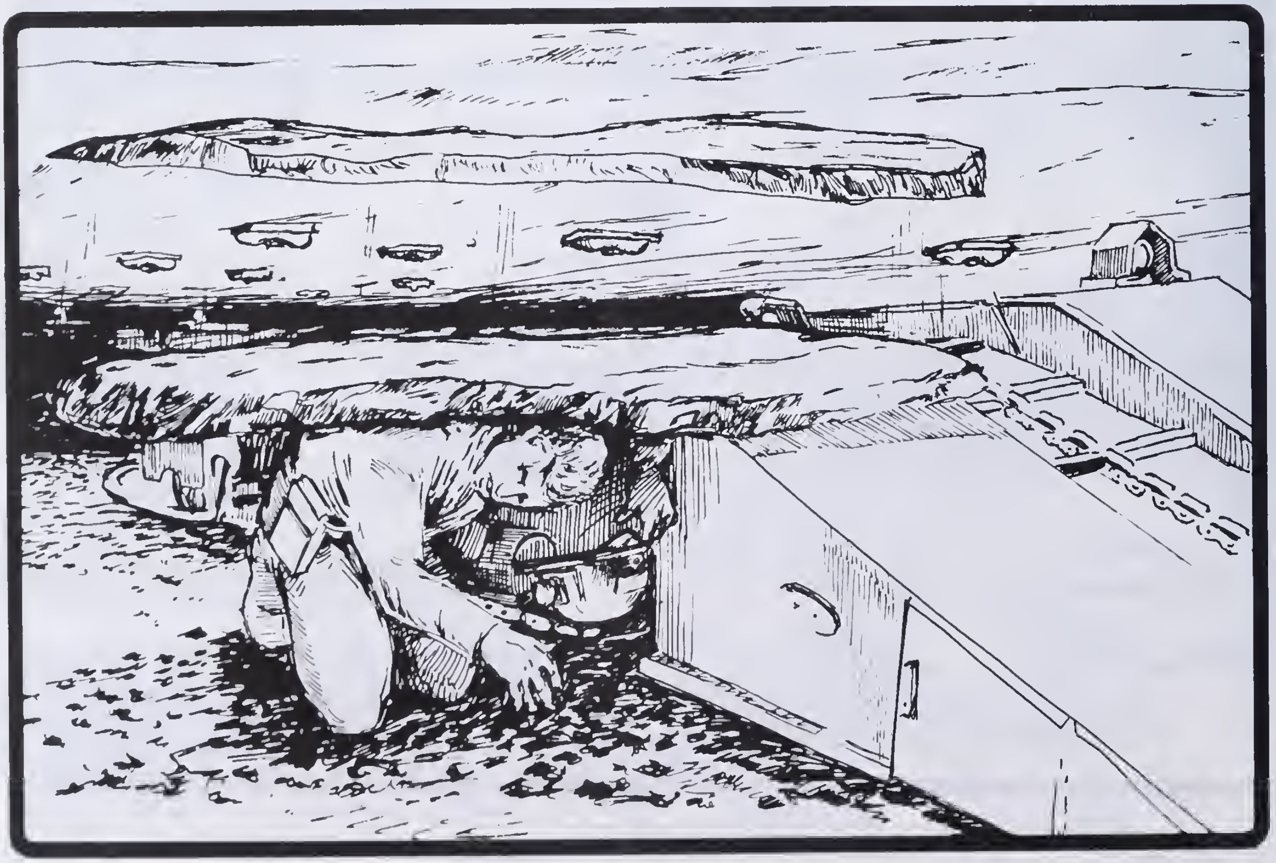
ABSTRACT OF INVESTIGATION

Date: October 12, 1990
Slide Number: 30 (Fatal Case Number: 56)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 41
Total Mining Experience: 25 years
Total Experience at this Mine: 15 years
Total Experience at this Job: 15 years
Number Employed at Mine: 12
Number Working at Time of Accident: 10
Time of Accident: 7:45 a.m.
Mining Height: 39 to 41 inches

A loader operator was moving the loader toward the face preparing to load coal. A piece of draw rock, approximately five feet long, three and one-half feet wide and from two to five inches thick, fell from the roof onto the loader operator. The loader operator had gone inby permanent roof support approximately three feet.

Means of Prevention
Never proceed inby permanent roof supports.



ABSTRACT OF INVESTIGATION

Date: November 27, 1990
Slide Number: 31 (Fatal Case Number: 61)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Tennessee

Age of Victim: 28
Total Mining Experience: 10 years
Total Experience at this Mine: 13 months
Total Experience at this Job: 11 1/2 months
Number Employed at Mine: 50
Number Working at Time of Accident: 16
Time of Accident: 5:00 p.m.
Mining Height: 34 inches

A continuous miner operator was operating a remote controlled continuous mining machine. He had positioned himself approximately 28 feet inby permanent roof support and was fatally injured by a roof fall as coal was being mined and loaded from the face. The rock which caused the fatal injuries was approximately 10 inches thick.

Means of Prevention

1. Never proceed inby permanent roof supports.
2. Use the remote control as a safety tool.

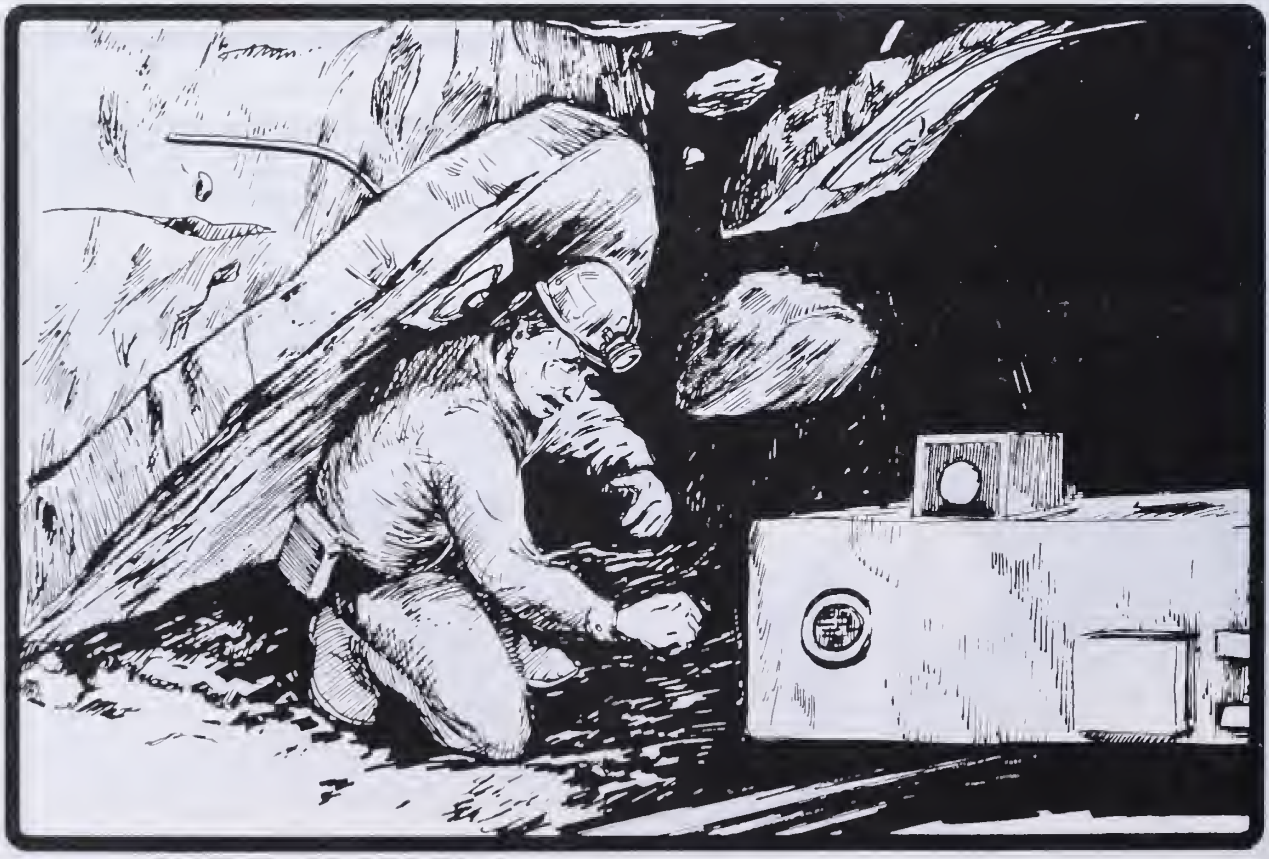
ABSTRACT OF INVESTIGATION

Date: December 10, 1990 (Died December 18, 1990)
Slide Number: 32 (Fatal Case Number: 65)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 32
Total Mining Experience: 12 years
Total Experience at this Mine: 2 1/2 years
Total Experience at this Job: 2 1/2 years
Number Employed at Mine: 72
Number Working at Time of Accident: 15
Time of Accident: 3:00 p.m.
Mining Height: 78 inches

A general inside laborer was kneeling beside a rail runner when a section of shale, approximately 48 inches by 46 inches by 7 1/2 inches, fell from the roof, striking the laborer. He died eight days later from complications.

Means of Prevention
Install adequate roof support.



ABSTRACT OF INVESTIGATION

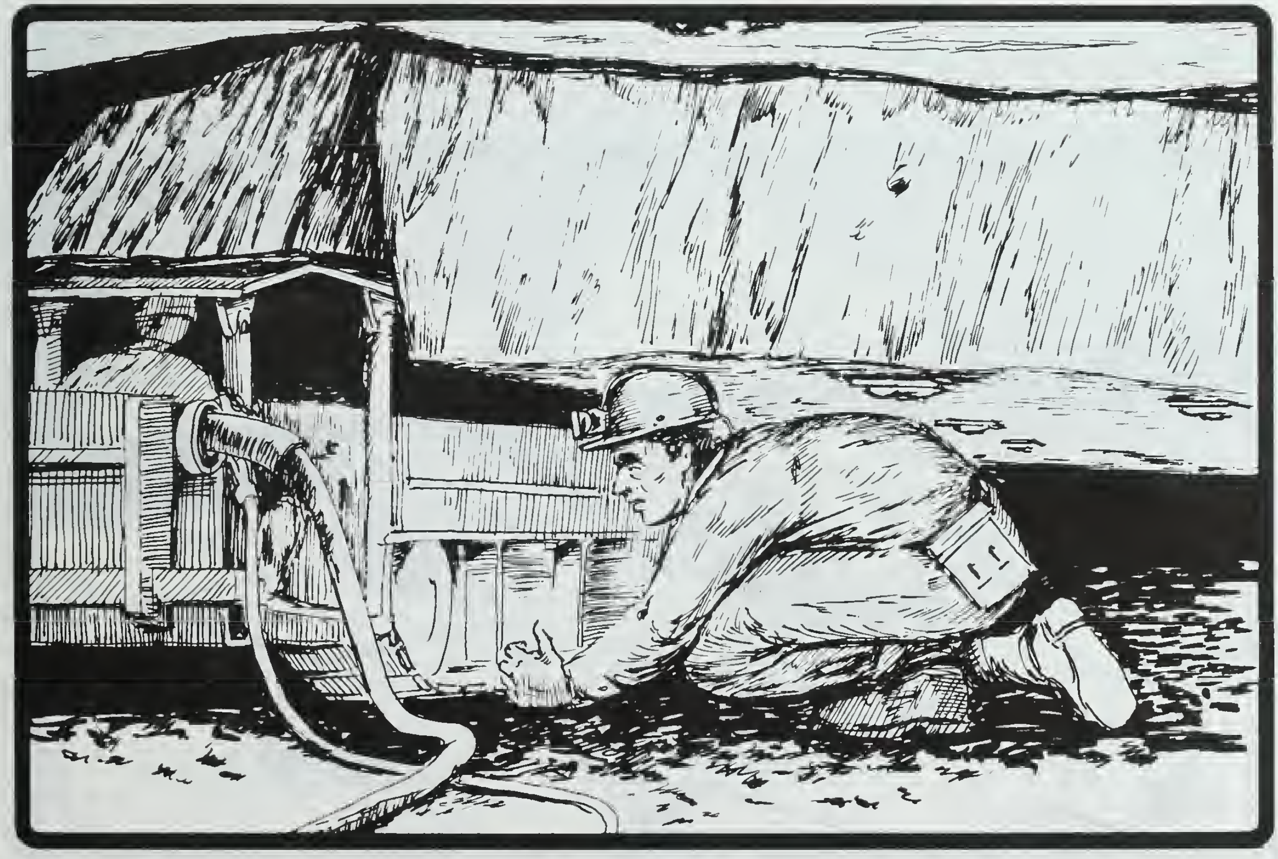
Date: December 31, 1990
Slide Number: 33 (Fatal Case Number: 67)
Accident Classification: Roof Fall
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 34
Total Mining Experience: 10 years
Total Experience at this Mine: 2 years
Total Experience at this Job: 2 years
Number Employed at Mine: 57
Number Working at Time of Accident: 12
Time of Accident: 6:40 a.m.
Mining Height: 44 inches

A continuous miner helper was caught under a massive roof fall during pillar recovery and was fatally injured.

Means of Prevention

1. Always comply with the approved roof control plan.
2. Do not conduct full and partial pillar recovery on the same pillar line.



ABSTRACT OF INVESTIGATION

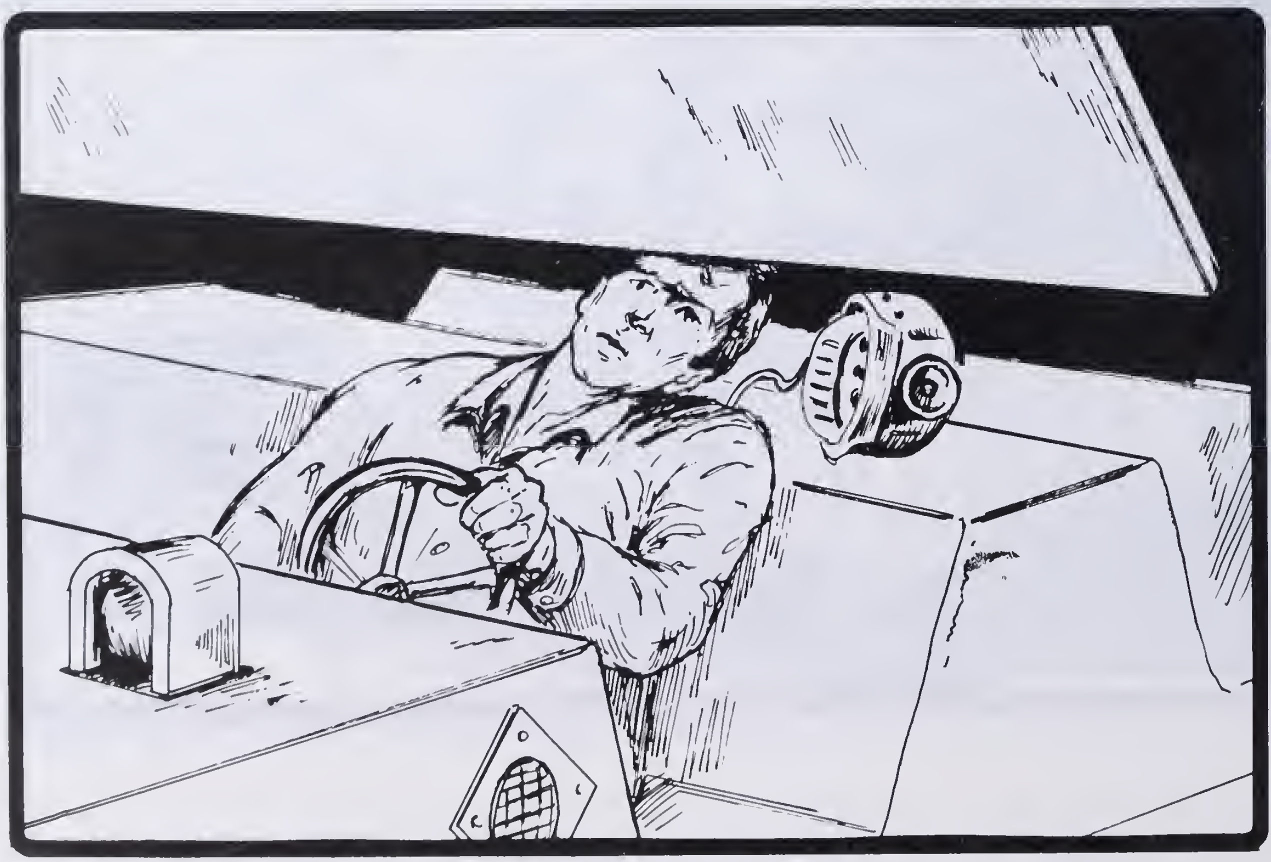
Date: July 27, 1990
Slide Number: 34 (Fatal Case Number: 36)
Accident Classification: Machinery
Type of Mine: Coal - Underground
Location: Illinois

Age of Victim: 44
Total Mining Experience: 21 years
Total Experience at this Mine: 5 years, 6 months
Total Experience at this Job: 6 years, 3 months
Number Employed at Mine: 260
Number Working at Time of Accident: 104
Time of Accident: 1:32 p.m.
Mining Height: 5 feet

A day shift mine manager and two general inside laborers had been doing repairs where a bus and a supply trailer had derailed. The mine manager was operating a personnel carrier and following the two inside laborers who were in another personnel carrier. The mine manager was 200 to 300 feet behind the laborers, travelling in the same direction. It was necessary to pass through a set of air-operated air lock track doors. When the laborers arrived at the outby door they proceeded through not activating the switch so that the mine manager could pass through and close the door. When they arrived at the next switch, the laborers activated it, opening the inby air lock door and passed through this door. The switch to close the inby air lock door was located about 136 feet inby. Not realizing that the mine manager was close behind them, one of the laborers reached up and activated the switch to close the inby air lock door. As the door closed, the bottom edge of the top hinged door struck the mine manager pinning him against the frame of the personnel carrier, resulting in fatal crushing injuries.

Means of Prevention

1. Emphasis should be placed on communications to ensure a positive knowledge of the location of affected persons.
2. Procedures for opening and closing doors should be established and strictly enforced.



ABSTRACT OF INVESTIGATION

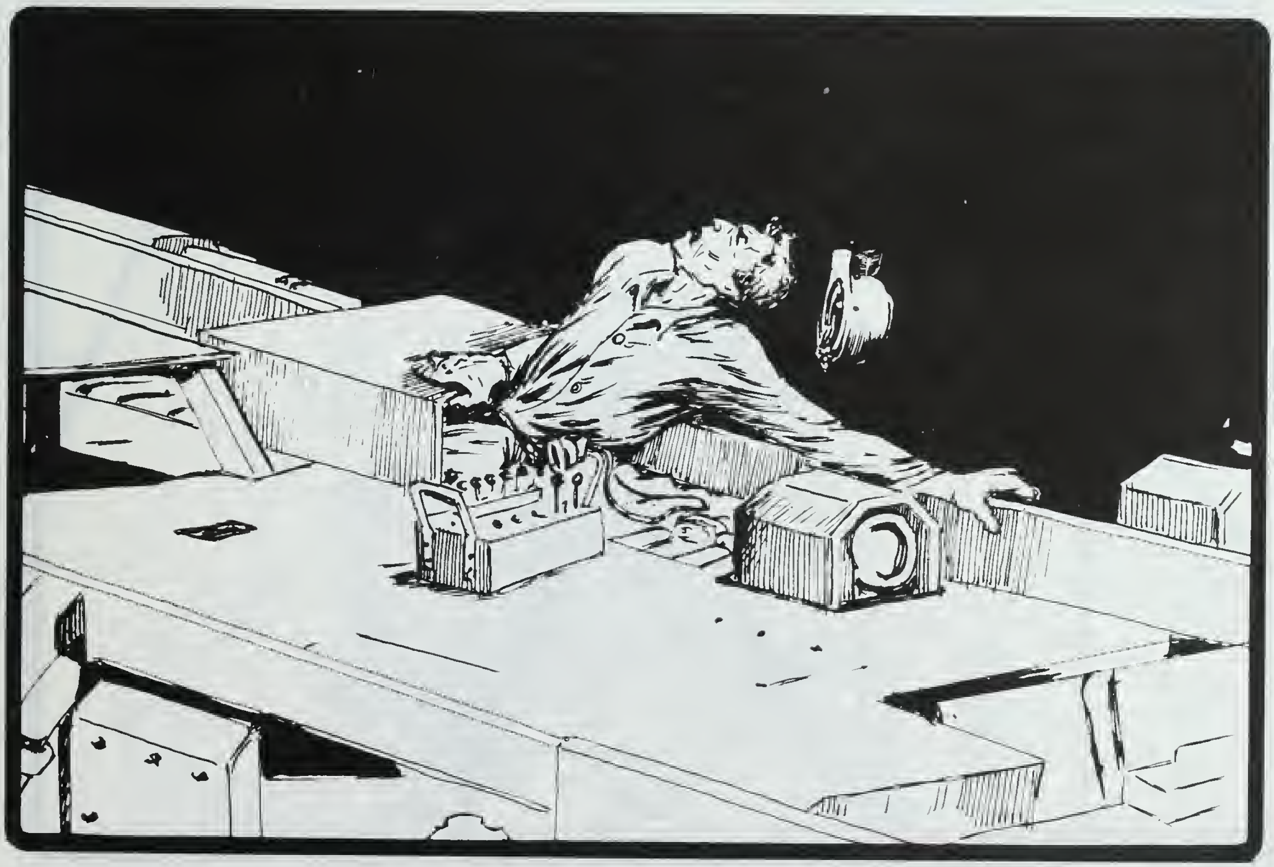
Date: November 12, 1990
Slide Number: 35 (Fatal Case Number: 59)
Accident Classification: Machinery
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 32
Total Mining Experience: 12 years
Total Experience at this Mine: 12 years
Total Experience at this Job: 6 years
Number Employed at Mine: 80
Number Working at Time of Accident: 30
Time of Accident: 10:45 a.m.
Mining Height: 60 inches

An electrician was repairing a continuous miner when he became caught in the conveyor chain and was fatally injured.

Means of Prevention

1. Remove equipment from service before performing maintenance.
2. Prior to operating remote control equipment, be sure to place yourself in a safe location.



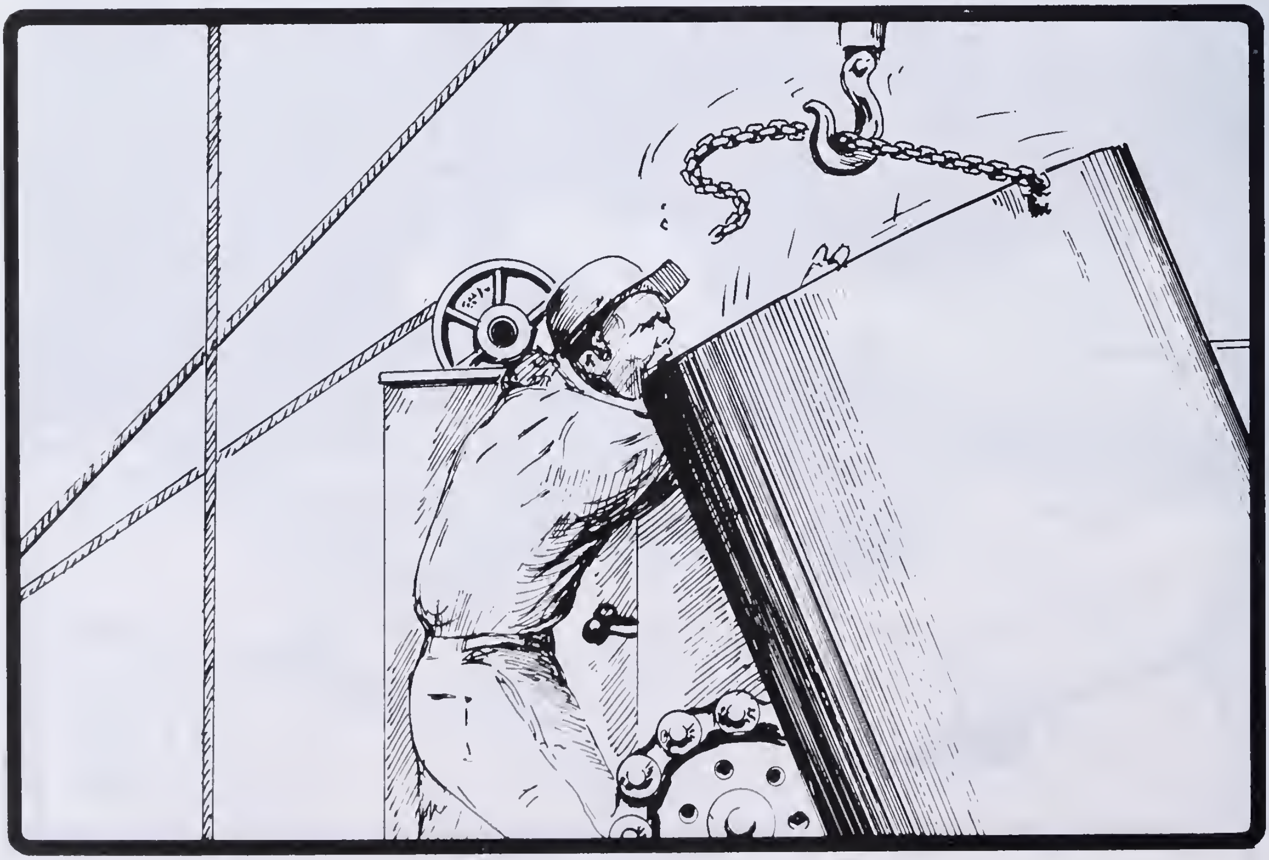
ABSTRACT OF INVESTIGATION

Date: July 20, 1990
Slide Number: 36 (Fatal Case Number: 60)
Accident Classification: Machinery
Type of Mine: Surface at Underground - Coal
Location: Kentucky

Age of Victim: 28
Total Mining Experience: 7 years (Contractor)
Total Experience at this Mine: 1 year, 2 months
Total Experience at this Job: 1 year, 2 months
Number Employed at Mine: 4 (Contractor)
Number Working at Time of Accident: 3 (Contractor)
Time of Accident: 10:30 a.m.
Mining Height: N/A

A hoist operator was fatally injured while raising a 55-inch diameter metal pipe that was to be used as a ventilation borehole liner. The weld attaching the 3/8-inch chain, used for connecting the hoist cable hook to the pipe, broke and the pipe fell crushing the victim between the pipe and the top of the hoist control housing.

Means of Prevention
Use proper rigging hardware or slings when hoisting pipe.



ABSTRACT OF INVESTIGATION

Date: December 17, 1990

Slide Number: 37 (Fatal Case Number: 63)

Accident Classification: Machinery

Type of Mine: Coal - Underground

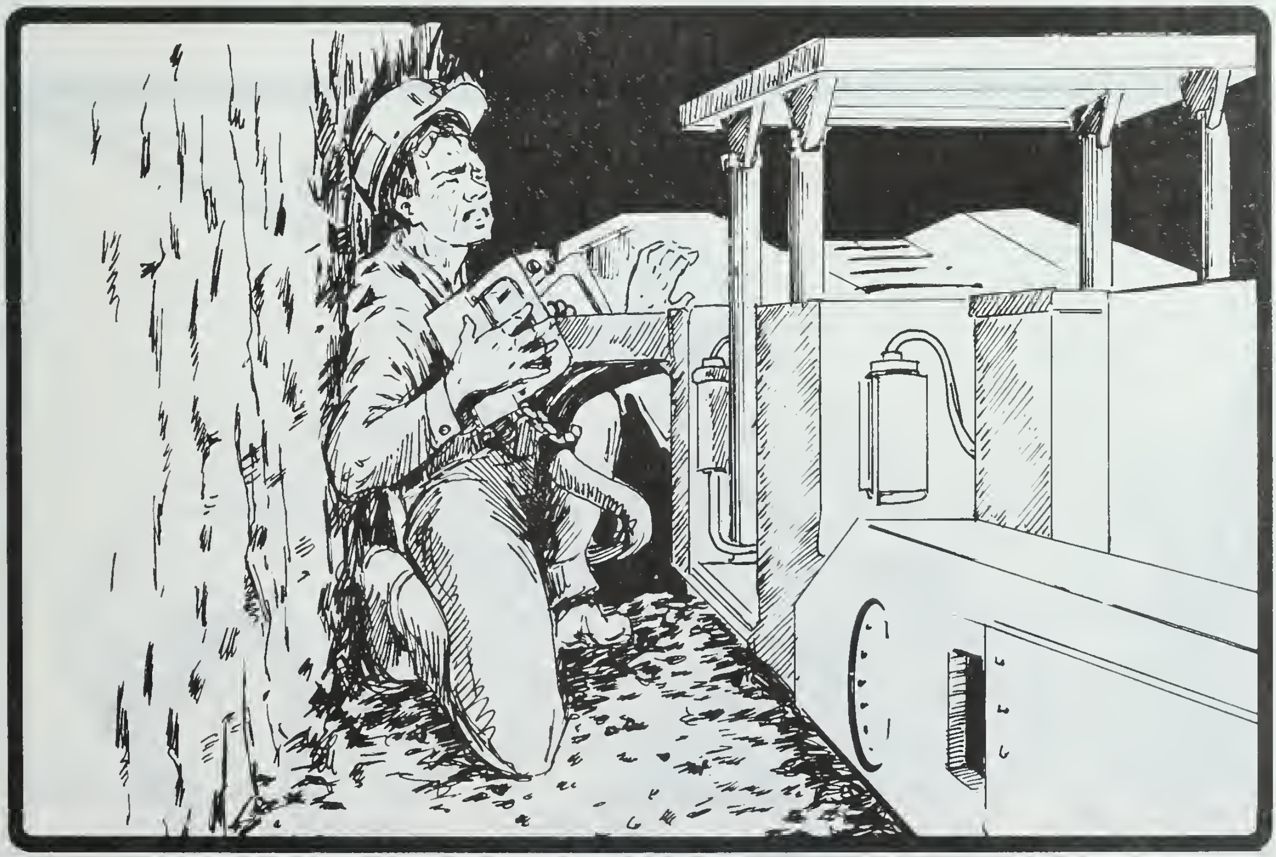
Location: Virginia

Age of Victim: 33
Total Mining Experience: 12 years
Total Experience at this Mine: 8 months
Total Experience at this Job: 8 months
Number Employed at Mine: 31
Number Working at Time of Accident: 12
Time of Accident: 5:15 p.m.
Mining Height: 42 inches

A continuous miner operator was pinned between the continuous mining machine and the rib.

Means of Prevention

Place yourself in a safe location prior to operating remote control equipment.



ABSTRACT OF INVESTIGATION

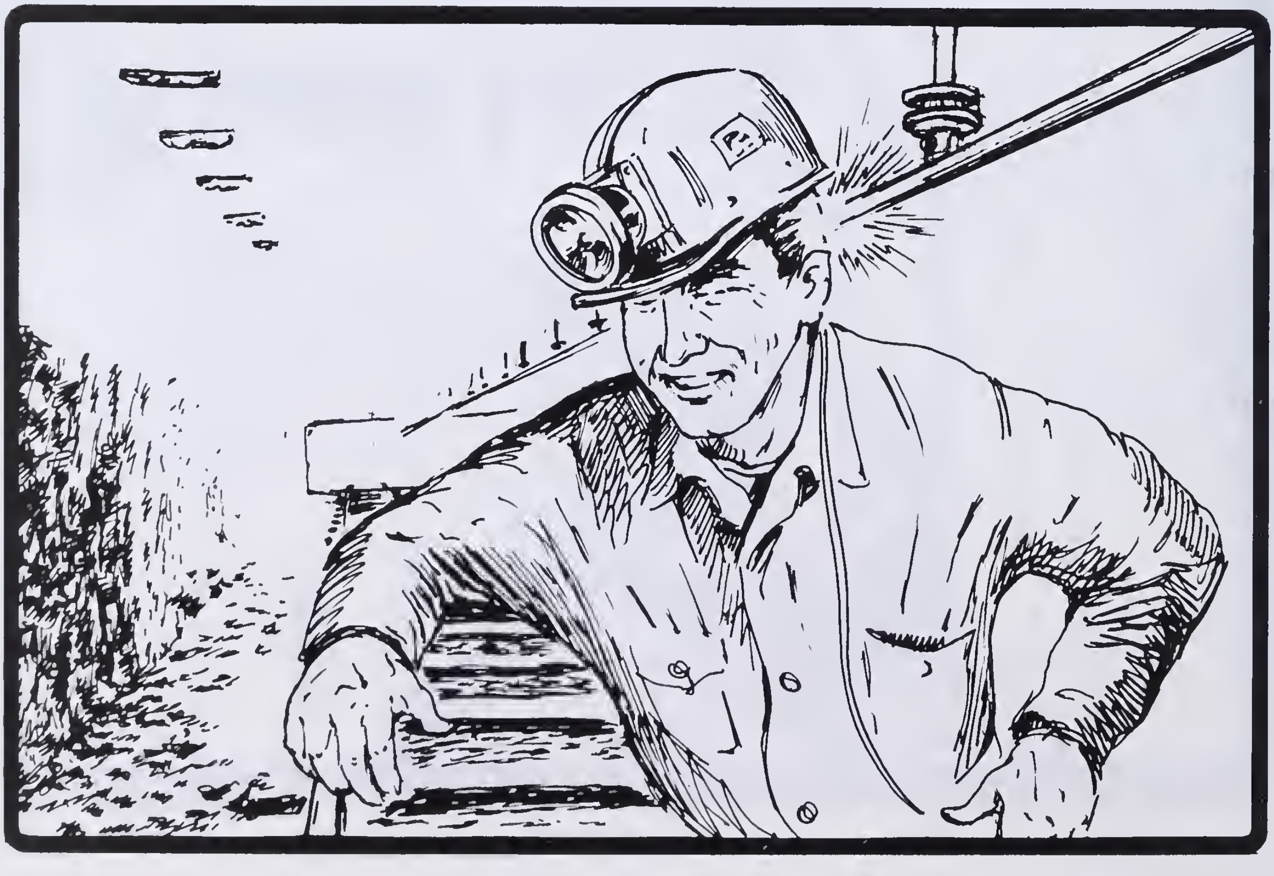
Date: September 10, 1990
Slide Number: 38 (Fatal Case Number: 49)
Accident Classification: Electrical
Type of Mine: Coal - Underground
Location: Ohio

Age of Victim: 31
Total Mining Experience: 11 years, 10 months
Total Experience at this Mine: 11 years, 10 months
Total Experience at this Job: 5 months
Number Employed at Mine: 202
Number Working at Time of Accident: 48
Time of Accident: 8:00 p.m.
Mining Height: 58 inches

A construction worker was repairing track. While moving the stinger cable of the bonder towards the next track joint to be repaired, his neck came in contact with an energized 300 volts of direct current trolley wire. A construction foreman used his shoulder to knock the victim out of the trolley wire. CPR was administered by the construction crew but he died of his injuries.

Means of Prevention

Guard trolley wires where miners are required to work or pass regularly under the energized wire.



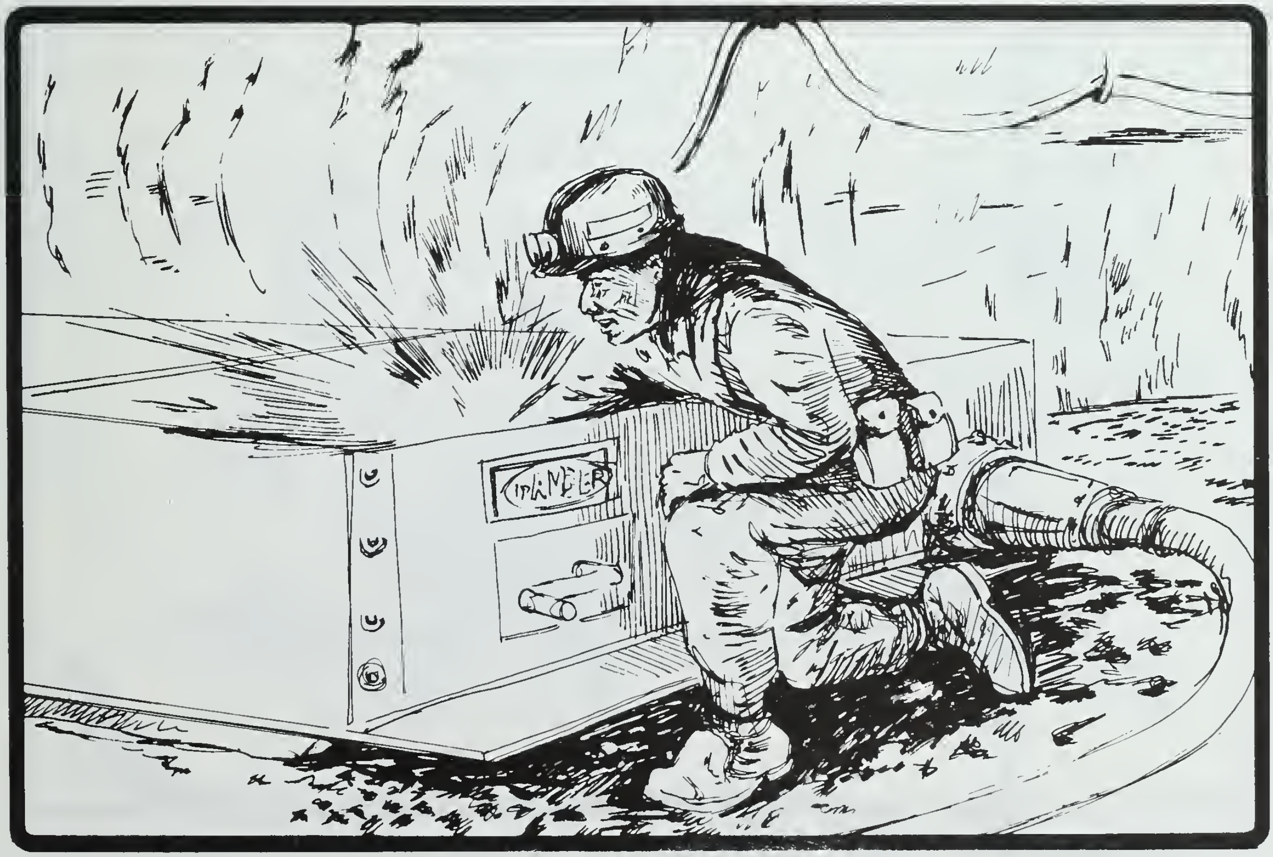
ABSTRACT OF INVESTIGATION

Date: September 17, 1990
Slide Number: 39 (Fatal Case Number: 50)
Accident Classification: Electrical
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 48
Total Mining Experience: 19 years
Total Experience at this Mine: 9 years, 2 months
Total Experience at this Job: 9 years, 2 months
Number Employed at Mine: 85
Number Working at Time of Accident: 35
Time of Accident: 8:00 a.m.
Mining Height: 50 inches

A shift foreman and an electrician were replacing a cable coupler. After completing the task they called to have the power restored from the substation on the surface. When the power was restored, the equipment was running reversed. The foreman called the surface to have the power removed from the section. When the shift foreman and the electrician removed the lid on the power center, they noticed two of the 18 amp fuses were blown. The foreman removed one of the fuses, to use as a reference, and carried it to the phone to call outside for replacements. The phone was approximately 60 feet from the power center. While the foreman was on the phone the electrician began reversing the phase leads in the power center. At some point while the electrician was working on reversing the phase, the circuit became energized. The electrician was fatally injured when he either contacted, or was already in contact with, the middle phase lead on the line side of the disconnect switch.

Means of Prevention
Always properly disconnect, lock out, tag, and ground high voltage circuits being worked on.



ABSTRACT OF INVESTIGATION

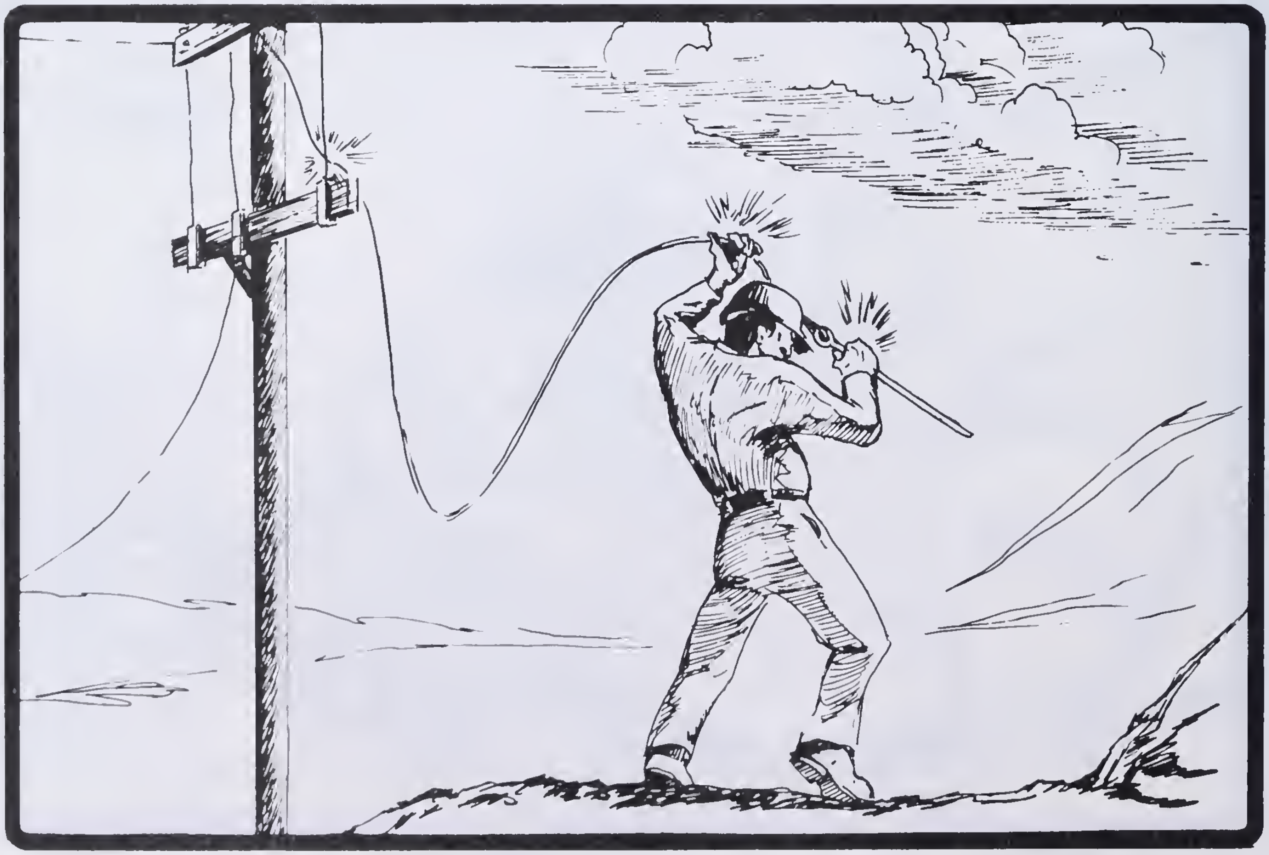
Date: September 19, 1990
Slide Number: 40 (Fatal Case Number: 52)
Accident Classification: Electrical
Type of Mine: Coal - Surface at Underground
Location: Virginia

Age of Victim: 29
Total Mining Experience: 9 years
Total Experience at this Mine: 9 days
Total Experience at this Job: 9 days
Number Employed at Mine: 22
Number Working at Time of Accident: 7
Time of Accident: 5:45 p.m
Mining Height: N/A

A guy wire attached to a high voltage power line support pole was dislodged from the ground anchor by the raised bed of a passing dump truck. A surface general laborer was assisting the truck driver in removing the guy wire from the roadway when the wire came in contact with the energized high voltage line, resulting in fatal injuries to the general laborer.

Means of Prevention

1. Attach pole guy wires securely to the system ground or use insulators.
2. When insulators are installed, they must be located below or extend below all high voltage lines supported by the pole.



ABSTRACT OF INVESTIGATION

Date: July 31, 1990
Slide Number: 41 (Fatal Case Numbers: 37, 38, and 39)
Accident Classification: Explosives
Type of Mine: Coal - Underground
Location: Kentucky

	Case #37	**Case #38**	**Case #39**
Age of Victim:	26	32	34
Total Mining Experience:	5 years	5 years	12 years
Total Experience at this Mine:	Unknown	Unknown	Unknown
Total Experience at this Job:	4 months	3 years	6 years

Number Employed at Mine: 9
Number Working at Time of Accident: 8
Time of Accident: 2:40 p.m.
Mining Height: 26 inches

A blasting accident occurred. Three employees, two coal drill operators and a shot firer, were fatally injured and two other employees were slightly injured.

Means of Prevention

1. Keep explosives, detonators and miners out of direct line of the forces from blasting.
2. Maintain directional control of working places.

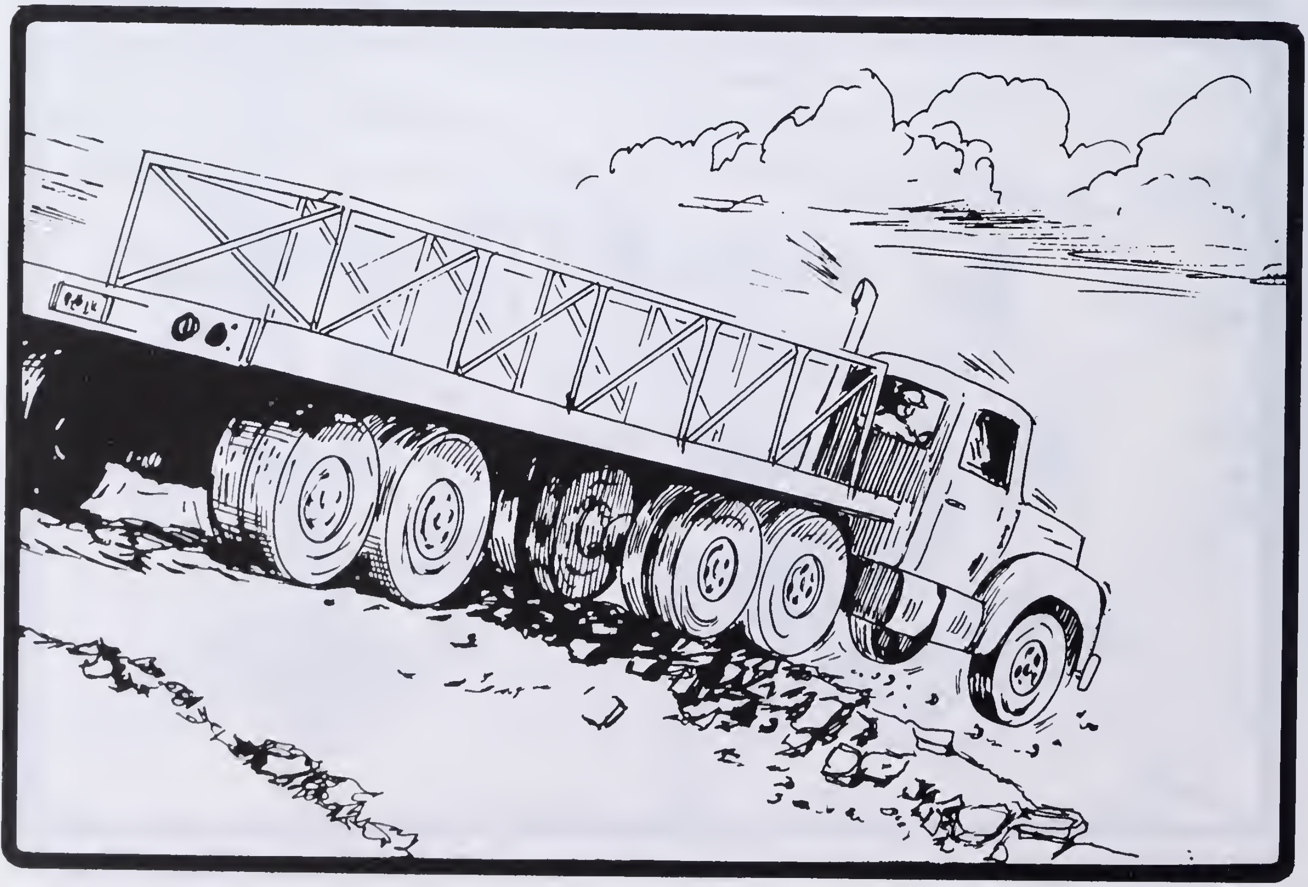
ABSTRACT OF INVESTIGATION

Date: July 30,1990
Slide Number: 42 (Fatal Case Number: 40)
Accident Classification: Powered Haulage
Type of Mine: Coal - Surface at Underground
Location: West Virginia

Age of Victim: 21
Total Mining Experience: 2 years (Contractor)
Total Experience at this Mine: 2 years
Total Experience at this Job: 2 years
Number Employed at Mine: 3
Number Working at Time of Accident: N/A
Time of Accident: 5:00 p.m.
Mining Height: N/A

A truck driver stopped on a grade for a construction crew that was cleaning out sumps along the haul road. After he drove by, the construction crew stated that he was raking the gears as he went by them and was travelling about 50 miles per hour. He continued descending the haul road on a grade from 8 to 14 percent. He could not negotiate a hairpin turn and went through a berm, measuring 3 feet high and 4 feet wide, and travelled airborne approximately 80 feet before hitting the ground. The truck then rolled approximately 100 feet while descending another 55 feet before going over a 51-foot highwall and coming to rest on railroad tracks. The accident caused fatal injuries to the truck driver.

Means of Prevention
Ensure that annual surface refresher training includes detailed descriptions of hazards, accidents, and limits of coal haulage vehicles.



ABSTRACT OF INVESTIGATION

Date: August 16, 1990
Slide Number: 43 (Fatal Case Number: 43)
Accident Classification: Powered Haulage
Type of Mine: Coal - Underground
Location: Illinois

Age of Victim: 27
Total Mining Experience: 9 months
Total Experience at this Mine: 6 months
Total Experience at this Job: 6 months
Number Employed at Mine: 570
Number Working at Time of Accident: 60
Time of Accident: 2:45 p.m.
Mining Height: 66 to 84 inches

A miner was hauling rock dust using a diesel-powered ram car. He drove the ram car over a loose bridge board (3 inches x 10 inches x 12 feet long) lying parallel with the entry. As the leading wheel on the operator's side of the ram car drove over the board, one end kicked up in the air. The raised end of the board entered the operator's cab, striking and pinning the miner against the opposite side of the cab, resulting in fatal crushing injuries.

Means of Prevention

All bridge lumber used on the mine floor should be secured, or loose and dislodged pieces of lumber should be resecured or removed from travelways.

ABSTRACT OF INVESTIGATION

Date: October 31, 1990
Slide Number: 44 (Fatal Case Number: 58)
Accident Classification: Powered Haulage
Type of Mine: Coal - Underground
Location: Kentucky

Age of Victim: 40
Total Mining Experience: 7 years, 10 months
Total Experience at this Mine: 6 months
Total Experience at this Job: 6 months
Number Employed at Mine: 33
Number Working at Time of Accident: 10
Time of Accident: 8:30 p.m.
Mining Height: 72 inches

A mobile bridge carrier operator was found unconscious sitting in the bridge carrier operator's deck. His head was tilted to the left and was resting on his miner's cap. He had a 1 inch by 48 inch section of roof bolt drill steel grasped in his right hand. He was transported to the hospital when he later died of his injuries. Although there were no eye witnesses to the accident, it appeared that the fatality was a result of the victim inserting the bit end of the roof bolt drill steel into the opening of the conveyor tail roller assembly. The drill steel made contact with the revolving tail roller, resulting in one end being broken and the other end striking the victim.

Means of Prevention
Moving parts should be adequately guarded.

ABSTRACT OF INVESTIGATION

Date: December 17, 1990
Slide Number: 45 (Fatal Case Number: 62)
Accident Classification: Fall of Highwall
Type of Mine: Coal - Surface at Underground
Location: Kentucky

Age of Victim: 36
Total Mining Experience: 15 years
Total Experience at this Mine: 3 weeks
Total Experience at this Job: 3 weeks
Number Employed at Mine: 9
Number Working at Time of Accident: 6
Time of Accident: 9:35 a.m.
Mining Height: 34 inches

An electrical repairman was attempting to repair a battery-powered scoop located on the surface. He had positioned himself between the highwall and the off side of the scoop. He apparently was reaching across the scoop to repair the oil tank when a section of highwall collapsed, crushing the repairman.

Means of Prevention

Special safety precautions shall be taken where miners are required to perform repair work between immobilized equipment and the highwall or spoil bank. Such equipment may hinder escape from falls or slides.

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ABSTRACT OF INVESTIGATION

Date: January 8, 1990 (Chargeback)
Slide Number: 46 (Fatal Case Number: 55)
Accident Classification: Other
Type of Mine: Coal - Surface at Underground
Location: West Virginia

Age of Victim: 54
Total Mining Experience: 21 years (Contractor)
Total Experience at this Mine: 12 years, 6 months
Total Experience at this Job: 12 years, 6 months
Number Employed at Mine: 23 (Contractor)
Number Working at Time of Accident: Unknown
Time of Accident: 2:15 p.m.
Mining Height: N/A

A hoist operator was instructed to operate a stationary derrick hoist used to transport miners and supplies to the bottom area of a completed air shaft. About 11:00 a.m. the hoist operator was notified that the hoist would not be needed until later in the day. The hoist operator removed the hoist from service, deenergized it, and remained in the hoist house awaiting further instruction from crew members. Shortly after 2:00 p.m. crew members, stationed outside the hoist house near the air shaft, summoned the hoist operator by an audible bell signal to begin operation of the hoist. The hoist operator did not reply to the request. An electrician, from a nearby outside work area, went to the hoist house to see why the hoist operator did not begin operation of the hoist. The electrician found the hoist operator seated and slumped back in the chair at the hoist operator's station. He was transported to the hospital where he was pronounced dead.

The evidence gathered failed to rule out the possibility that death was due to electrocution. In that electrocution could not be established as the actual cause of death, the fatality has been classified as "Other".

Means of Prevention
Electrical equipment shall be frequently examined, tested, and properly maintained by a qualified person to ensure safe operating conditions.